Application Number: T1-00008 **Scientific Score**: 77

Title: Stem Cell Research Training Grant

Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.

Proposal Abstract as Submitted by Applicant

We propose a Type I training program in Stem Cell Biology for eight predoctoral, four postdoctoral, and four clinical CIRM Scholars, to be administered by the Stem Cell Research Center at [redacted]. Predoctoral Scholars will enter the program at the end of their first year in the Molecular Biology, Genetics and Biochemistry (MBGB) graduate program, the Interdepartmental Neurosciences Program (INP) or other relevant PhD program at [redacted]. CIRM pre- and postdoctoral Scholars will participate in research training in the labs of [redacted] stem cell mentors. The CIRM clinical Scholars will enter a new track in our existing residency and a subspecialty fellowship training program: after completing two years of clinical training in a specialty residency program and one year of clinical training in subspecialty fellowship program, the trainee will spend two years in basic or translational stem cell research. All CIRM Scholars will participate, during their first year of support, in a year-long sequence of three new courses: Basic Biology of Stem Cells; Clinical Applications of Stem Cells; and Social, Legal and Ethical Implications of Stem cell Research. Trainees will also be provided with access to a specialized laboratory course entitled Human Embryonic Stem Cell Culture Training Course, a dedicated workshop on Large-Animal Models for Stem Cell Research, and seminars and symposia focused on stem cell biology and clinical application. We will provide a research training environment for Scholars in many areas of stem cell biology including the Basic Biology of Stem Cells, Developing Tools for Stem Cell Research, Genetics of Cortical Stem Cells, CNS Injury and Stroke, Neurodegenerative Disease, Tissue Engineering, Diabetes, the Role of Stem Cells in Cancer, Stem cell Therapy for Ocular Disease, and Stem Cell-Based Screens to Identify Novel Drugs targeting cell proliferation, differentiation, and death. By formalizing, expanding and integrating stem cell training at [redacted], we plan to contribute to the acceleration of stem cell research in the state, and to increase the number of scientists and clinicians participating in stem cell research and its application to treatments.

Benefit of this Program to California

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

Summary of Review

Overall, this proposal reflects a significant commitment to the training of stem cell scholars, but presents a better-organized program for pre-doctoral or post-doctoral trainees than for clinical trainees. The program proposes three new courses for CIRM Scholars that include: Basic Biology of Stem Cells; Clinical Applications of Stem Cells;

and Social, Legal, and Ethical Implications of Stem Cell Research. Each scholar is expected to select a primary mentor with whom to develop a research project and will additionally be mentored by a committee of three faculty members, who will monitor progress. The program director and co-director have broad and significant experience in institutional leadership capacities, in research administration, and in directing training programs at the pre-doctoral and post-doctoral levels. About 33 qualified faculty members are identified as potential mentors for CIRM Scholars, but most are not currently engaged in stem cell research. The applicant pool is strong, and existing programs focused on the development and recruitment of minority students is well described and appropriate. The program description for clinical fellows did not provide sufficient detail on how the training would be accomplished. For example, strategies for integration and translation were not presented, except for the proposed course in Clinical Applications of Stem Cells. Therefore, the Working Group recommended the deletion of four clinical slots from this program with the possibility of awarding the slots in the future, if the panel's concerns were adequately addressed.

Overall Strengths and Weaknesses

This application proposes the development of a well-organized program, particularly for pre-doctoral and post-doctoral trainees, that would benefit from a large pool of quality mentors, a strong academic environment, and strong leadership. Areas of concern include: the lack of a strong track record in embryonic stem cell-related research among mentoring faculty and inadequate detail in describing the training of clinical fellows.

Recommendations

Highly meritorious and recommended for funding with a reduction of clinical trainee slots. Reviewers encourage the applicant to submit an application at a later date for a supplement to fund these positions when concerns have been addressed.

	Pre	Post	Clinical	Total
Fellows Requested:	8	4	4	16
Fellows Recommended:	8	4	0	12

	Year 1	Total
Budget Requested:	$ 1,071,183	$ 3,312,597
Budget Recommended:	$ 666,615	$ 2,039,845